

Serial No.: 10/534,961
Examiner: Sanjay Cattungal
Reply to Office Action Mailed August 20, 2009
Page 4 of 6

REMARKS

Reconsideration is requested in view of the above amendments and the following remarks. Claim 1 has been editorially revised. Support for the revisions can be found at, e.g., Figs. 1-3, among other places. Claims 1-6 remain pending in the application.

Claims 1-6 are rejected under 35 USC 103(a) as being unpatentable over Taylor (US 6,709,397) in view of Morley et al. (US 6,840,938). Applicant respectfully traverses this rejection.

Claim 1 is directed to an ultrasonic probe including a first pulley that is directly connected to an end portion of a shaft different from the end portion connected to a motor, a second pulley coaxially provided at a rotation axis, and a wire connecting the first pulley and the second pulley. The present configuration of first and second pulleys helps to reduce undesirable vibration caused by gear transmissions and ensures a smoother swing movement of a transducer unit. As a result, an ultrasonic scanning process can be conducted more smoothly so that more precise ultrasound images can be obtained (see, e.g., page 4, lines 5-7 of the specification, among other places). Moreover, the present first pulley directly connected to the end portion of the shaft allows a relatively shorter wire to be used for connecting the first and second pulleys and thus helps reduce loosening of the wire and further helps reduce displacement of the transducer unit. As a result, more precise ultrasound images can be obtained (see, e.g., page 4, lines 9-12 of the specification, among other places).

Taylor fails to teach or suggest an ultrasonic probe including a first pulley that is directly connected to an end portion of a shaft different from the end portion connected to a motor, as required by claim 1. Instead, Taylor merely discusses a vertical bevel gear 6 directly connected to an end portion of a shaft 14 (see Taylor, Figs. 2 and 4, col. 8, lines 3-7). Taylor also discusses a horizontal bevel gear 7 being connected to the vertical bevel gear 6 for transmitting the rotational movement of the motor 5 to a belt 10, which takes the ultrasound transducer 11 to move along with the belt 10 (see Taylor, col. 7, line 61 to col. 8, line 23 and Figs. 2-4). Nowhere does Taylor teach or suggest a first pulley that is directly connected to an end portion of a shaft as required by claim 1.

Serial No.: 10/534,981
Examiner: Sanjay Cattungal
Reply to Office Action Mailed August 20, 2009
Page 5 of 8

The lower belt pulley 8 in Taylor would not teach or suggest the pulley that is directly connected to an end portion of a shaft as required by claim 1. As clearly shown in Figs. 2-4 of Taylor, the lower belt pulley 8 in fact is not directly connected to an end portion of the shaft 14. Rather, it is the vertical bevel gear 6 that is connected to the end portion of the shaft 14 in Taylor. The rotation of the shaft 14 is transmitted to the vertical bevel gear 6 and further to the horizontal bevel gear 7 via gear transmissions. The lower belt pulley 8 merely rotates along with the horizontal bevel gear 7 because the lower belt pulley 8 is fixed to the horizontal bevel gear 7 (see Taylor, col. 7, line 61 to col. 8, line 23). Therefore, the present pulley directly connected to an end portion of a shaft is completely distinct from the lower belt pulley 8 in Taylor.

Morley et al. do not remedy the deficiencies of Taylor. Morley et al. merely discuss a shaft 62 including lumens having cables 86 and 88 extending therethrough. The cables 86, 88 and the pulley assembly in Morley et al. help transmit rotational movement to end effector elements 78 and 80. Morley et al. are completely silent as to a first pulley that is directly connected to an end portion of a shaft in the manner as required by claim 1.

Moreover, the present record fails to provide any teachings or suggestions that would lead one of ordinary skill to combine the cables 86, 88 and the pulley assembly in Morley et al. with Taylor, much less any reason to expect the advantages enjoyed by the present invention, for example, reducing undesirable vibration caused by gear transmissions, and allowing a relatively shorter wire to be used for connecting pulleys and thus helping reduce loosening of the wire, could be achieved.

For at least these reasons, claim 1 is patentable over Taylor in view of Morley et al. Claims 2-6 depend ultimately from claim 1 and are patentable along with claim 1 and need not be separately distinguished at this time. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claims.

Serial No.: 10/534,961
Examiner: Sanjay Cattungal
Reply to Office Action Mailed August 20, 2009
Page 6 of 6

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned attorney, Douglas P. Mueller, Reg. No. 30,300, at (612) 455-3804.

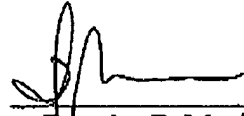


Respectfully submitted,

HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
P.O. Box 2902-0902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: October 20, 2009

By:



Douglas P. Mueller
Reg. No. 30,300

DPM/cy